

Case Study - Compressed air system audit improves efficiency and reliability of existing system



▲ Manufacturing company able to acquire \$168,000 rebate from power company.

With today's economy and the need for increased energy savings, customers are more aware of the true costs of operating an inefficient compressed air system and the effects it has on their bottom line. A major central Minnesota manufacturer retained John Henry Foster to analyze their compressed air system and provide solutions for better performance. The company was looking to improve the efficiency and reliability of their system and also establish 100 percent backup capability.

CHALLENGES

The business was faced with two main challenges. The first involved the breakdown of a compressor installed in the 1940's with very little reliable backup capability. Further breakdowns would make it virtually impossible to support production and without backup, any unexpected failure would result in the inability to fulfill production obligations leading to a very costly shut down of operations.

The second challenge addressed the system's overall efficiency which was important due to the fluctuations in demand between shifts and weekend production. The manufacturing facility operated three shifts, with the 2nd and 3rd shift utilizing nearly the same amount of energy and generating similar costs, while supporting reduced production levels.

SOLUTIONS AND BENEFITS

A compressed air system flow and pressure analysis was conducted looking at the system as a whole and addressing energy and redundancy concerns. These studies are designed to identify initiatives to ensure the most efficient technologies are being utilized, while reducing energy use so one is not spending more money on compressed air than necessary. The evaluation consisted of;

- Identifying compressed air demand
- Recommendations for new efficient compressor
- Improvements to plumbing and drain system
- Reducing plant pressure and leak losses

RESULTS

Study results revealed that recommendations would result in a reduction of 420 kW. This would qualify for an anticipated rebate through Xcel Energy Compressed Air Program exceeding \$150,000. Upon completion and implementation of the new energy efficient system, Xcel Energy conducted their own audit and found they were in agreement with JHFoster. Final analysis of the energy efficient system resulted in maximizing the full potential for efficiency and a rebate of \$168,000.

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